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No. III.


SHUTTLE-BOXES FOR WEAVING WIDE
VELVET.

1. *The sum of TWO GUINEAS was presented to Mr. S. GILDERSLEVE, 7 Providence Street, Blue Anchor Lane, Bethnal Green,*
2. *The sum of THREE GUINEAS was presented to Mr. JAMES SLATER, 27 Robert Street, Hart's Lane,*
3. *The sum of THREE GUINEAS was presented to Mr. S. LARWOOD, 9 James Street, Church Street, Bethnal Green,*

For their respective Shares in the Improvement of Shuttle-boxes for Weaving Wide Velvet. A Model of Mr. Larwood's Shuttle-boxes has been placed in the Society's Repository.

IN weaving velvet the following advantage is derived from the use of two shoots of different degrees of substance, viz. that the stouter shoot, when pressed up by the reed, settles in the back of the work, making a good bed for the wire on which the loops of the pile are cast, and giving a firm texture to the back of the work; while the fine shoot settles in the face of the work, and pinches the necks of the pile-loops, so as to cause the cut ends to expand and completely cover the ground. In weaving narrow velvet there is no necessity for shuttle-boxes, the narrowness of the work enabling the workman to pick up each shuttle in its turn, and throw it by hand. As this is impracticable in the weaving of wide velvet, it has

hitherto been the practice, in manufacturing this latter article, to use a single shuttle thrown from a pair of boxes mounted on the battens, and carrying a shoot of sufficient substance to make the work as stout as the narrow velvet, although with an inferior arrangement of the material. This inferiority manifests itself by an appearance, technically termed "grinning;" *i. e.* the ends of the pile are so pressed together by the even shoots that the ground may be seen between the rows of the pile. The object of the present contrivance is, therefore, to produce wide velvet equal to the narrow, both in substance and appearance.

Mr. Gildersleve contrived a box revolving one quarter of a turn and back again on a horizontal axis, and fixed on the battens, so as to present alternately each of its two compartments to the shed, when the two shuttles respectively are driven. The letter E may represent a section of the two compartments placed one above the other, as in the first position; and when placed thus—, as in the second position. Each compartment has a separate driver, and the boxes are loaded in such a manner that the second, or lower compartment, is brought up to the shed by depressing a treadle, to which is attached a cord which turns the box over on its axis. When the treadle is released, the box, by its uneven disposition of weight, revolves in the opposite direction, and the upper compartment is brought forwards. While the boxes are in the first position, the wire-tube is introduced into the shed.*

By Mr. Slater's plan, the shuttle which carries the fine shoot is thrown from the ordinary boxes fixed on

* See vol. lii. p. 216.

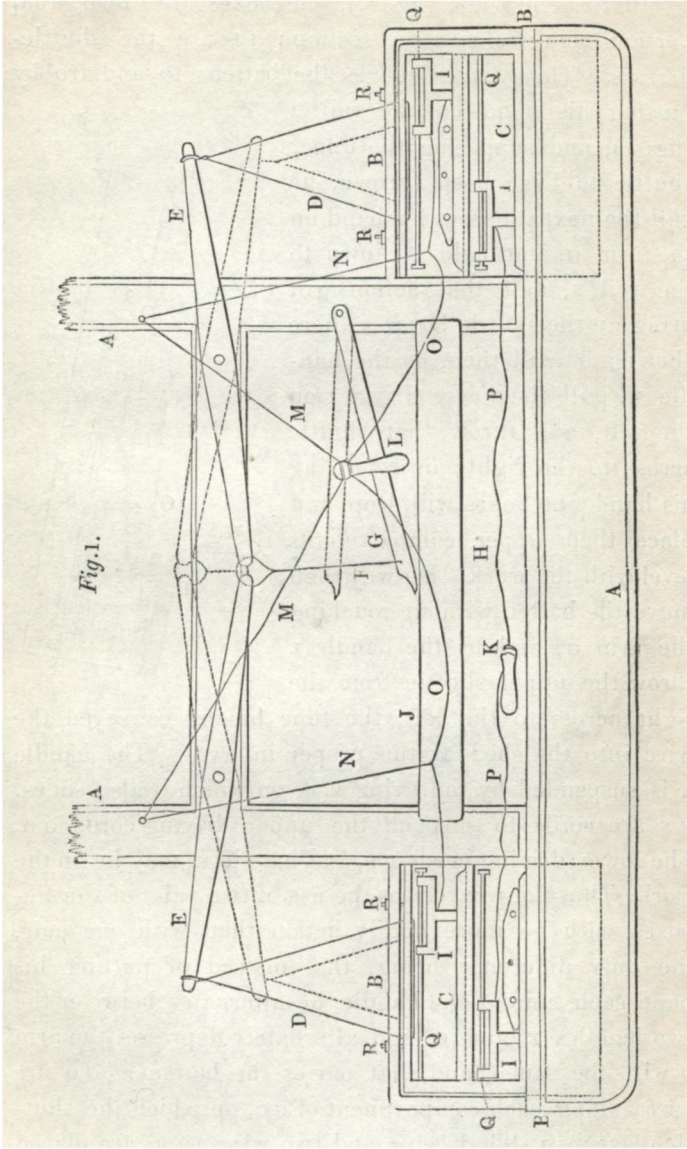
each end of the battens; and in order that the extra shuttle-boxes may not interfere with the introduction of the wire-tube, they are detached from the battens. Each time that the battens are pressed up to the work they are returned without the detached boxes, which slide on horizontal rods, and are brought up to the battens (after the wire-tube is withdrawn) by means of a treadle and cords. When on the battens, their curved ends cover the mouths of the fixed boxes, so that their shuttle may be thrown without danger of entering the wrong box on the opposite side. This plan appears to have so far answered its intended purpose as to have enabled Mr. Slater to produce several pieces of wide velvet, which were pronounced to be of superior quality.

Mr. Larwood's invention is a modification of the apparatus known as the Manchester drop-boxes, which consists of a nest of two or more shuttle-boxes, one above the other, made so as to rise and fall in a frame at each end of the battens by means of cords attached to levers, of which the ends meet at the middle of the battens, and may be worked by the finger of the hand which brings up the battens, while the other hand is engaged with the sticks of the driving-cords. The workman depresses the levers so as to bring the pair of boxes required at a given stage of the process even with the reed, and then, with the other hand, drives the shuttle belonging to that pair.

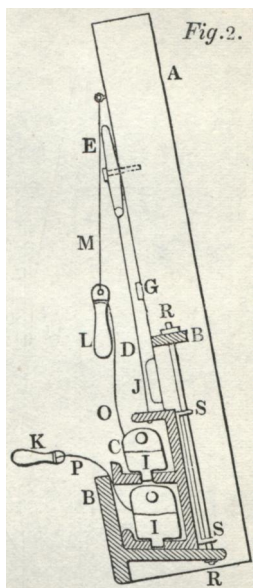
The Manchester boxes are used for brocades and other figured silk goods, for which shoots of various colours are required; and each set of boxes has but one driver sliding on a rod fastened to the front of the nest, from which a projecting piece enters each box and drives its shuttle. This arrangement requires no more than one

driving cord ; the shuttles which are not required at any given stroke being prevented from coming out of their boxes by the side of the frame, the only opening in which is on a line with the reed, and admits of the passage of any shuttle which is brought to that position previously to being driven. The common driver of the Manchester boxes, however, occupies so much space in front of the battens that the wire-tube used in weaving wide velvet cannot conveniently be applied. The principal alteration that Mr. Larwood has introduced is the adaptation of a separate driver within each box, sliding on a wire in the upper part of the box, the whole apparatus being sufficiently compact to admit of the wire-tube being brought to the proper position,

Fig. 1 is a front view of the battens *A A A*, having frames *B B* at each side to contain double shuttle-boxes *C C*, divided into upper and lower compartments ; these hang by the strings *D D*, the ends of which pass through holes in the top of their boxes, and then meet to be tied to the levers *E E* ; the equal tension, thus ensured, preventing the boxes from cornering in the frames. The inner ends of the levers *E E* are tied by the one string *F* to an arm *G*. *H* is the space occupied by the reed, and in front of which the velvet is made. The shuttle-boxes are shewn raised up, their lower compartments being level with the work, ready to give or receive their shuttle. The dotted lines shew the position of the levers when the boxes are let down, so that their upper compartments are level with the work.



In the end view (fig. 2), the boxes are down, that portion being shewn in section; *ii* are the shuttle-drivers. The weaver moves the battens to and fro by putting his hand on the rail *j* (fig. 1), and supposing the upper shuttle to have been thrown, he will the next time put his hand on the arm *g*, and hold it down to the rail *j*, and that action will bring up the shuttle-boxes as here shewn; he will then, by the handle *k*, pull the lower driver *i* on the left, and throw that shuttle across to the right; on removing his hand, the boxes will drop, and place their upper compartments level with the work. He will then move the batten without touching the arm *g*, and by the handle *l* throw the upper shuttle from the right across to the left, the tube having conveyed the wire into the shed at the proper interval. The handle *l* is suspended by the string *mm*, on which it also slides. *nn* are cords to suspend the upper driving cords *oo*. The lower driving cords *pp*, and handle *k*, may lie on the work. Thus the weaver has the use of two pairs of shuttle-boxes, with no more bodily action than with one pair, the only difference being, that instead of putting his hand each time to one handle, he alternates between the two handles *k* and *l*, and alternately depresses the arm *g* with the same hand that moves the battens. *qq* are wires along each compartment of *cc*, on which the shuttle drivers *ii* slide freely; and two wires (*rr*) are placed



at the back of each shuttle-box, on which they slide very freely up and down by their brass holes ss, as shewn in fig. 2.

No. IV.

APPARATUS FOR TAKING IN THE SHOOT OF
WIDE-WOVEN FABRICS.

The sum of THREE GUINEAS was presented to Mr. WILLIAM ROOKE, 17 Russell Court, Drury Lane, for his Apparatus for Taking in the Shoot of Wide-woven Fabrics; a Model of which has been placed in the Society's Repository.

THERE are various woven fabrics in use for coach-linings, sofa and chair-covers, curtains, and other ornamental furniture, of which the shoot is wholly, or in part, of horse-hair, or vegetable fibre of different kinds. The fibre is in lengths somewhat exceeding the width of the work, and is placed in the shed by doubling it on a hook, by which it is conveyed into it, and laid straight in the position of the ordinary spun shoot, which is thrown by a shuttle. This method is found to be extremely inconvenient when the work exceeds a certain width, on account of the great distance to which the workman must necessarily extend his arm in introducing the hook.

The apparatus by which Mr. Rooke remedies this inconvenience enables the weaver, by a limited and convenient motion of his hand, to throw the long hook through a wide warp, and return it while it draws in the shoot.